

Running Head: ADAPTING TO REDUCTIONS IN TEAM SIZE

Adapting to Reductions in Team Size: An Examination of Three Structural Alternatives

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### Abstract

Research on downsizing in organizations has traditionally focused on the affective-based reactions of survivors or the reactions of financial markets to downsizing announcements. Very little research has examined how organizational units adapt to downsizing. This paper investigates three structural approaches to downsizing in teams and directly tests the general proposition that the appropriateness of a specific structural alternative can only be understood by considering certain team compositional factors. Results suggest that the conscientiousness, emotional stability and extraversion of team members moderate the relationship between these three structural alternatives and team performance.

Downsizing is an important mechanism for organizations to cope with changes in the strategic, economic and competitive environment (Lee, 1997). This is true in business contexts as well as military contexts. Personnel and compensation costs make up 35 percent of the \$402 billion Pentagon budget and at current rates, these costs will consume half the military budget by the early 2020s (Crawley, 2005). In response to this, Air Force leaders have committed to reducing their active-duty force by more than 20,000 airmen by the end of 2005 (Hafemeister, 2005). Navy officials also plan to implement a variety of long-term “force-shaping” policies that will eliminate the need for 25,000 sailors by the end of fiscal 2007 (Farem, 2005).

Although there are certainly cost savings to be realized from such downsizing efforts, much of the research on downsizing in business contexts suggests that organizations often suffer from decreases in employee performance, increases in negative perceptions of work among employees (Devine, Reay, Stainton, & Collins-Nakai, 2003; Spreitzer & Mishra, 2002), and increases in employee turnover (Spreitzer & Mishra, 2002). Furthermore, downsizing organizations often experience declines in organizational innovation (Dougherty & Bowman, 1995) and financial performance (Cascio & Young, 2003; Nixon, Hitt, Lee, & Jeong, 2004).

Given the significant, negative implications downsizing can have on employees within organizations as well as overall organizational performance, understanding how best to initiate and manage downsizing initiatives is critical. To date, most of the literature on downsizing in organizations examines either the affective-based reactions of employees (e.g., Brockner et al., 1987, 1993) or the reactions of financial markets (e.g.,

Nixon et al., 2004) to downsizing announcements. Thus, the existing base of research on downsizing establishes that the organizational implications of downsizing are significant but provides limited guidance on how best to approach implementing and managing downsizing initiatives.

Research in strategic management, corporate restructuring, and strategic human resource management has begun to examine the value and contingencies associated with specific approaches to downsizing. For instance, Brockner and colleagues (1993; 1995) suggest approaches to downsizing must optimize outcomes for both the organization and employees. Whereas organizations must seek to maintain their core competencies (Hitt, Keats, Harback, & Nixon, 1994), organizations must also show concern for employee welfare (Chadwick, Hunter, & Walston, 2004). Dewitt (1998) extends this research by examining specific contingencies and showing that the appropriateness of specific downsizing approaches at the organization-level is dependent on the characteristics of an organization's resources.

Nonetheless, existing research on approaches to downsizing is primarily at the organization-level and focuses mostly on the strategic options of the firm. This literature does not consider the effects of particular downsizing approaches or possible contingency factors at sub-levels in the organization. Organizations have and continue to organize work around highly complex, interdependent teams (Ilgen, 1994; 1999), and these teams are particular sub-units of the organization that are especially subject to the effects of downsizing. These teams are fast-acting, often distributed across locations, highly interdependent, and organized around specific sets of goals (e.g., Sundstrom, McIntyre, Halfhill, & Richards, 2000). Similar to how downsizing can damage existing social

networks within organizations (Shah, 2000), changes in within-team size over time can be especially detrimental to the performance of the unit. Interestingly, no research to date has examined the extent to which teams are able to adapt to within-team changes in size, and thus there is need for studies that examine downsizing at the point of impact, which is typically at the team level.

Further, no research has considered the impact on team performance associated with different structural alternatives for downsizing a team. Although research at the organizational level suggests that the negative impact of downsizing is attenuated when it is accompanied by structural reallocation of assets, there are many different types of structural reallocation and these have not been differentiated in this literature. Thus, research on specific downsizing approaches in the context of organizational teams and the contingency factors that influence these approaches is vital.

Finally, the downsizing literature is also characterized almost exclusively by cross-sectional studies of non-equivalent firms where it is difficult to draw inferences that are not confounded by many extraneous factors beyond the downsizing decision and method. That is, firms that do not downsize differ from downsizing firms on many dimensions other than this one decision, and firms that structurally reallocate in addition to downsizing often differ from non-structural downsizing firms. Thus, there is a need for more tightly controlled research where equivalent groups are examined longitudinally in order to draw more rigorous inferences regarding various structural alternatives.

The purpose of this article is twofold. First, we examine three specific structural methods for downsizing in organizational teams. Second, we directly test the general proposition that the appropriateness of a specific structural alternative can only be

understood by considering certain team compositional factors. In general, we argue that the choice of which downsizing approach to use is contingent on certain collective dispositional characteristics of the team, specifically team-level conscientiousness, emotional stability, and extraversion.

The following sections of the article are organized as follows. First, we outline three structural alternatives to downsizing in teams. Second, we discuss the general propositions of contingency theory and establish which contingency factors are especially relevant for downsizing in teams. We then explain why the optimal choice among downsizing approaches is dependent on the composition of the team. Next, we discuss the methods and empirical results of an experiment conducted to test these propositions. Finally, we discuss the theoretical and managerial implications of our research.

### *Downsizing in Teams: Three Basic Structural Alternatives*

There are many different approaches to organizational downsizing, including retrenchment, downscaling, and downscoping (Dewitt, 1998). Whereas differences between these approaches are based on the organization's strategic choices, all three approaches to downsizing incorporate reductions in the number of employees. In turn, teams operating in the context of organizational downsizing are inevitably subject to personnel loss (e.g., losing a team member or the team leader). However, several structural alternatives exist regarding how teams can downsize, and we discuss below three of these approaches that we will label Maintain, Integrate, and Eliminate. These approaches represent several basic structural alternatives available to teams when subject to reductions in team size, particularly as they relate to how the team manages hierarchy

and whether or not changes in size are accompanied by changes in centralization. These three alternatives are depicted graphically in Figure 1.

#### *Structural Alternatives to Downsizing in Teams*

*Maintain Hierarchy.* This particular approach to downsizing maintains the team's hierarchical structure. While one of the team members is eliminated, the formal team leader position is maintained. The roles and responsibilities of the displaced team member are redistributed among the other team members, thereby increasing the workload of each team member. In turn, the team makes *no structural adaptation* in response to the downsizing. This has been referred to in the literature as "pure employment downsizing" (Cascio, Young & Morris, 1997) and has been traditionally associated with the worst outcomes in terms of future firm performance.

*Integrate Hierarchy.* In this particular approach to downsizing, one of the team members is eliminated. However, in contrast to the Maintain Hierarchy approach, the team leader assumes the roles and responsibilities of the displaced team member. In this alternative, the team adapts structurally to the downsizing by eliminating the formal leadership position, but retains the knowledge and experience of the individual who once occupied this position. The team leader must adapt accordingly by learning the new role and set of responsibilities, and thus must assume many operational duties that were not part of his or her prior role. The team overall must adapt to the loss of the leader and change in hierarchical structure. This is one form of structural reallocation, and in this configuration the team becomes more decentralized at the same time it is getting smaller.

*Eliminate Hierarchy.* Similar to the Integrate Hierarchy approach, the Eliminate Hierarchy approach to downsizing also results in structural adaptation in the form of

increased decentralization. With this approach, both the formal leader position, and the individual who occupied this position are eliminated, and the team takes the form of a highly autonomous, self-directed work team (Cohen & Bailey, 1997). This approach is a form of substantive participation (Levine & Tyson, 1990), whereby the remaining team members are required to increase their participation and assume team leadership duties such as coordination, planning, and monitoring (Morgeson, in press).

In operational terms, the Eliminate Hierarchy strategy is similar to the Integrate Hierarchy approach in that it is decentralized; however, it differs in the sense that the former formal leader is no longer part of the team and the team members are expected to assume some formal leadership responsibilities. One might expect that the clear requirement to assume the former responsibilities of the formal leader might create a stronger trigger to adaptation in these teams relative to teams who still had access to their former leader.

In sum, the Maintain approach to downsizing eliminates a team member and allocates the unfulfilled responsibilities to the remaining team members. The Integrate and Eliminate approaches to downsizing respond to the downsizing of a team member by redistributing the unfulfilled responsibilities and adapting the team's structure so that it becomes more decentralized. In one of these decentralization schemes (Integrate), the leader is still available as a resource but has additional operational responsibilities, whereas in the other (Eliminate), the leader is no longer available as a resource, creating additional leadership responsibilities among the operators.

### *Hypotheses*

An extensive body of literature supports the general proposition that, as workload increases and exceeds capacity, performance suffers (Hacker et al., 1978; Williges & Wierwille, 1979; Xie & Salvendy, 2000; Yeh & Wickens, 1988; Zeitlin, 1995). More directly, research at the organizational level by Cascio, Young, and Morris (1997) shows that the “pure employment downsizing” model, best captured here by the Maintain alternative typically is associated with substantial performance losses. This same research suggests, however, that these losses can sometimes be offset when downsizing is accompanied by structural reallocation of assets.

The Cascio et al. (1997) results, however, were based on a cross-sectional study of very large organizations where there were no equivalent control groups for firms that adopted the Maintain (i.e., pure employment downsizing) alternative. The cross-sectional nature of the study without equivalent control groups means that we really have no idea what pure employment downsizing firms may have experienced had they not chosen this alternative, and the possibility exists that they may have performed even worse had they not taken this alternative. Moreover, the non-equivalent nature of the structural reallocating firms relative to the pure employment downsizing firms means that there were many differences between those firms other than just this one response that makes their comparison confounded. Thus, one of the purposes of this study is to replicate the results of Cascio et al. (a) in more tightly controlled context, (b) with smaller social systems (c) in a context where there is random assignment of strategies to teams (d) where teams are observed longitudinally. Specifically we predict:

*Hypothesis 1a: Teams that do not downsize (Control) will achieve superior levels of performance relative to all teams that experience downsizing.*

*Hypothesis 1b: Within the teams that are downsized, the teams who adapt structurally to the downsizing (Integrate and Eliminate) will generally outperform those teams that do not adapt structurally (Maintain).*

### *Downsizing in Teams: A Contingency Perspective*

Contingency theory has been applied to a host of issues in the organizational sciences (Miner, 1984), including topics as diverse as decision-making (Vroom & Yetton, 1973), leadership (Fiedler, 1967), team performance (e.g., Hollenbeck et al., 2002; Moon et al., 2004), and organizational adaptation (Lawrence & Lorsch, 1967). The central premise underlying any contingency theory is that there is no one best way to manage organizations and that the optimal choice or approach depends on a specific set of circumstances or conditions. Whereas one set of conditions may promote a particular approach, another set of conditions may in fact promote the opposite approach. Applying contingency theory to downsizing in teams, we argue here that the appropriateness of a particular downsizing approach is dependent on certain team compositional factors.

There exists a long history of research heralding team composition as an important area of study (e.g., Cattell, 1948; Steiner, 1972). As researchers have begun to recognize the importance of non-demographic variables, one compositional element that has received considerable attention is team member personality (e.g., Barrick et al., 1998; Beersma et al., 2003; Hollenbeck et al., 2002). Much of the literature linking member personality with team processes and outcomes leverages the widely accepted five-factor model of personality (Costa & McRae, 1992), which conceptualizes personality in terms

of conscientiousness, emotional stability, extraversion, agreeableness, and openness. Along the five-factor model, conscientiousness and emotional stability are generally accepted as the best broadband predictors of work performance (Barrick, Mount, & Judge, 2001). In addition, Extraversion is often viewed as a key compositional element in teams.

Specifically, extraversion influences the interactions among people, including information exchange and cooperation, and is thus especially relevant in the context of teams (Beersma et al., 2003). Overall, conscientiousness, extraversion, and emotional stability have been shown to relate to viability, helping behavior, and decision-making accuracy in teams (e.g., Barrick et al., 1998; English, Griffith & Steelman, 2004; LePine et al., 1997; Porter et al., 2003). Given that downsizing puts into question a team's viability, increases the workload for team members, and forces the team to make decisions about how best to coordinate and perform tasks given a reduced number of members, these three factors of the five-factor model are considered especially important. Thus, the present study focuses specifically on the contingencies associated with the conscientiousness, emotional stability and extraversion of team members in the context of downsizing.

### *Conscientiousness*

Across a wide body of research examining the five-factor model of personality, conscientiousness is generally accepted as the best predictor of individual job performance across a variety of job contexts (Barrick & Mount, 1991; Mount & Barrick, 1995). Furthermore, Barrick and colleagues (1998) suggest that higher levels of conscientiousness enable team members to positively contribute to team performance

regardless of the task or role in the team. Considering the various structural alternatives to downsizing that are available to teams, conscientiousness is expected to differentially promote those approaches that entail some form of structural adaptation (Eliminate and Integrate).

Downsizing in teams introduces additional complexity and uncertainty regarding how the team will operate going forward with reduced personnel. This is especially true when the team, in addition to experiencing the loss of a team member, undergoes some form of structural adaptation in response to the downsizing. In these cases, the team is not only subject to personnel loss but also a fundamentally different hierarchical structure. LePine and colleagues (1997) show that conscientiousness is critical when learning and integrating knowledge in complex environments are necessary. For the downsizing approaches that entail structural adaptation, Eliminate and Integrate, these teams must use their experience to determine how best to adapt to the loss of a team member as well as a change in team structure. Following this logic, greater levels of conscientiousness in the team should promote more persistence on the part of team members to learn and share knowledge that differentially promote alternatives to downsizing that incorporate some form of structural adaptation (Eliminate and Integrate).

Although the conscientiousness of team members is not expected to hinder teams who use the Maintain approach to downsizing, we do not expect the benefit to be as great for these teams. The reason for this is that the introduction of a new team structure forces the team members to re-engineer their processes in a way that is not necessarily triggered when teams simply stay within their original team structure. Teams who maintain their structure despite the loss of a team member are subject to a lesser degree of adaptation

pressure and thus are required to engage in less learning, problem solving and knowledge sharing than teams who adapt structurally. Furthermore, research shows that conscientiousness can help maintain levels of trust in teams, and trust is especially important in the context of downsizing (Brockner et al., 1997).

*Hypothesis 2: The relationship between downsizing strategy and performance is contingent upon the composition of the team such that the benefits of structural reallocation (Eliminate and Integrate) relative to non-downsizing (Control) and pure employment downsizing (Maintain) will be most pronounced in teams that are high in conscientiousness.*

#### *Emotional Stability*

Heslin (1964) suggests that the emotional stability of the team is a noteworthy predictor of team performance. Research suggests this is because higher aggregate levels of emotional stability in the team lead to greater levels of cooperation in the team. In contrast, low emotional stability has been found to stifle cooperation and prosocial behavior in teams (George, 1990; Watson & Tellegen, 1985). Emotional stability at the team level has also been linked to adaptability, in the sense that emotionally stable teams show better adaptability to structural misalignment (Hollenbeck et al. 2002) and uneven workload distributions (Porter et al. 2003).

Whereas cooperation and prosocial behavior are important in most, if not all, downsizing contexts, these processes are especially important in teams that experience some form of structural adaptation in response to downsizing. When teams use an Integrate approach to downsizing, the team must work together to (a) accelerate the team leader's learning curve regarding the new role and set of responsibilities and (b)

determine how best to function in light of not having a team leader to coordinate activities and monitor the team environment. When teams employ an Eliminate approach to downsizing, the original set of team members must collectively determine the implications of not having a team leader and adapt accordingly. In either case, greater levels of emotional stability are expected to promote approaches to downsizing that incorporate some form of structural adaptation.

*Hypothesis 3: The relationship between downsizing strategy and performance is contingent upon the composition of the team such that the benefits of structural reallocation (Eliminate and Integrate) relative to non-downsizing (Control) and pure employment downsizing (Maintain) will be most pronounced in teams that are high in emotional stability.*

#### *Extraversion*

Highly extraverted individuals are sociable and have a desire to work with others in group settings (Costa & McRae, 1992). In contrast, introverts are typically more reserved and independent, and prefer to work alone or in teams where they are granted autonomy (Beersma et al., 2003). Thus, in the context of teams, extraversion tends to promote greater levels of interaction and cooperation among team members. Similar to the argument put forth above for emotional stability, increased cooperation as a result of higher aggregate levels of extraversion in the team should differentially favor those alternatives to downsizing that require some form of structural adaptation.

*Hypothesis 4: The relationship between downsizing strategy and performance is contingent upon the composition of the team such that the benefits of structural reallocation (Eliminate and Integrate) relative to non-downsizing (Control) and pure*

*employment downsizing (Maintain) will be most pronounced in teams that are high in extraversion.*

### *Method*

#### *Research Participants & Task*

Research participants were 355 upper-level, undergraduate students at a large, Midwestern university. Each student was a member of a five-person team, resulting in a total of 71 teams. All individuals were randomly assigned to teams and roles, and all teams were randomly assigned to experimental conditions (see section on Manipulations for details on conditions). In return for their participation, each student received class credit and was eligible for performance-based cash prizes.

Participants engaged in a dynamic and networked computer simulation. The task was the modified version of a simulation developed for the Department of Defense, Distributed Dynamic Decision-Making (DDD; see Miller, Young, Kleinman, & Serfaty, 1998, for a complete description). An illustration of the actual computer screen, which was divided into four equal geographic quadrants, appears in Hollenbeck et al. (2002). Each team engaged in two separate, 30-minute simulations. All individuals and teams, regardless of experimental condition, received the same training on the simulation. This training consisted of two separate modules. First, all participants watched a 15-minute video that introduced them to the simulation. Second, all participants were provided hands-on instruction and time to practice the simulation. This second module lasted approximately 60 minutes and allowed participants to learn the basic mouse movements and operations. The major elements of the simulation task were related to asset management and geography.

*Asset Management.* Team members were randomly assigned to one of two roles in the team. The roles included one team leader and four team members and differed in terms of responsibility for and management of assets. Each team “member” controlled four vehicles (assets) that could be launched and moved anywhere on the screen, including those areas controlled and monitored by other team members. These assets automatically performed certain functions, such as tracking, returning to base to refuel, and launching. Four types of assets were used: (1) AWACS planes, (2) tanks, (3) helicopters, and (4) jets. The capabilities of each asset differed in terms of range of vision, speed of movement, duration of operability, and weapons capacity. The team members were tasked with using these assets to monitor a geographic space, identify tracks as friendly or unfriendly, and properly engage and disable unfriendly tracks. The team “leader” was not allocated any assets but had the ability to monitor the entire geographic space, identify tracks as friendly and unfriendly, and transfer assets among team members.

There were 12 unique tracks, 3 of which were considered friendly and 9 which were considered unfriendly. These tracks differed in terms of their speed of movement, requirements to disable, and ease of identification. Moon et al. (2004) and Hollenbeck et al. (2002) provide additional details regarding the specific abilities of all of these tracks. Each team used its assets to engage and disable an array of tracks on a single, networked simulation grid (see Hollenbeck et al., 2002, for a complete description of the simulation grid).

*Geography.* The simulation screen was divided into quadrants (NW, NE, SW, SE). Each team member was randomly assigned to a quadrant; the team leader could

monitor all quadrants. The quadrants were further divided into three regions that varied in terms of the penalty associated with unfriendly tracks. The first region, labeled “neutral,” included all areas outside the quadrants (the outermost perimeter of the geographic space). Teams were not penalized for any track located in this particular region and lost 25 offensive points for engaging any track in this region. The second region, labeled “restricted,” was a 12 by 12 grid in the center of the geographic space. The third region, labeled “highly restricted,” was a 4 by 4 grid in the center of the grid. Teams were tasked with keeping unfriendly targets from moving into the restricted and highly restricted areas, while allowing friendly targets to travel throughout the geographic space.

All tracks originated from the edge of the screen and moved toward the center of the grid. To monitor the geographic space, each team member had a base in the center of the corresponding quadrant. Each base and asset was equipped with a detection ring and an identification ring. Once the track entered the detection ring of a base or asset, the individual could see the track but could not identify it as either friend or foe. Once the track entered the more proximal identification ring, the track could be identified as either friendly or unfriendly. The team leader, who was not allocated any assets and did not control a specific base, could see and identify any track available to any of the four team members.

### *Manipulations & Measures*

*Downsizing approach.* All teams were randomly assigned to one of four conditions. These conditions varied in the approach used to downsize the team from five to four team members. In the control condition (“Control”), teams experienced no downsizing and thus performed the second simulation with the same team composition

and structure. In the other three experimental conditions, teams were downsized between the first and second simulation using one of the three approaches to downsizing identified earlier.

In the first downsized condition, which we refer to as “Maintain Hierarchy,” a team member was displaced from the team, and this individual’s assets were redistributed to the remaining team members whose role scope, in terms of operational responsibility increased. The team leader remained in the leadership role and had no additional operational capabilities or responsibilities. Thus, in this condition, no structural adaptation was made in response to the downsizing and this could be considered equivalent to the “pure employment downsizing” method that has been identified as most problematic in the firm downsizing literature.

In the third condition, labeled “Integrate Hierarchy,” one of the team members was displaced from the team and then replaced by the team leader. Thus, in this condition, the hierarchical structure of the team was eliminated, and the team leader was repositioned into the role of a team member. Thus, the operational scope of the leader increased, and his or her former leadership role could either be kept constant or redistributed to the team as a whole. Because the possibility existed for the leader to maintain much of their former role in their new position, this was suspected to be less likely to trigger process adaptation relative to the last condition described below.

In the final downsized condition, labeled “Eliminate Hierarchy,” the team leader was displaced from the team, thereby eliminating the hierarchical structure of the team. The operational scope of the team members was left unchanged, however, the team needed to expand their roles in terms of performing many of the traditional tasks

performed by the leader. Recall that the leader had unique capacities to monitor the entire geographic space and transfer assets among team members, and in his or her absence, the team as a whole had to monitoring the big picture and reallocate tasks when there were workload distribution problems. Although this condition is similar to the Integrate Hierarchy condition in the sense that downsizing was accompanied by structural reallocation, because the person who formally acted as the leader was no longer available as a resource to the team, we believed that this would trigger greater adaptation on the part of the team as a whole.

*Personality.* We measured conscientiousness, emotional stability, and extraversion via the short-form of the Revised NEO Personality Inventory (Costa & McRae, 1992). Each of these three personality factors was measured with 12 items, and the corresponding reliability coefficients were .81, .80, and .79 respectively. We aggregated individual team members' scores on each of the three personality factors into an overall mean level score for the team. We chose the additive approach (Barrick et al., 1998) here because the interdependent nature of the task and equal level of responsibility among team members (notwithstanding the team leader's responsibilities) suggests that each individual's personality score equally increases the collective level for that particular trait.

*Team performance.* Each team started with 50,000 defensive points and 1,000 offensive points. Teams lost 1 defensive point for each second an unfriendly track was in the restricted zone and 2 defensive points per second for each unfriendly track in the highly restricted zone. Teams gained 5 offensive points for successfully disabling an unfriendly track and lost 25 offensive points for engaging a friendly track. The final

number of defensive points and the final number of offensive points were standardized and then summed to form an overall composite score for team performance.

### *Results*

Table 1 presents the means, standard deviations, and correlations of all variables measured or manipulated in this experiment. Table 2 presents the results for team performance regressed on the primary downsizing manipulations. Table 3 presents the results for team performance regressed on the primary downsizing manipulations, team-level personality factors (conscientiousness, emotional stability, extraversion), and the interactions between these variables. In each of the regression analyses, the team's performance from simulation 1 was entered in the first hierarchical step, thereby controlling for past performance in each analysis. Then, the primary downsizing manipulations were dummy coded in contrast to the control condition and were entered in the second hierarchical step. In regressions examining contingencies associated with personality (Table 3), the moderating variable was entered in the third step, and the then interaction was entered as the fourth step.

Hypotheses 1a and 1b were generally supported in this experiment. As indicated in Table 2, teams in the Maintain and Integrate conditions performed significantly worse than the teams who did not experience any downsizing (Control). The performance of teams in the Eliminate condition was not significantly different than that of teams in the Control condition, although the mean levels of performance between the Control and Eliminate conditions were in the expected direction. Within the teams that were downsized, those teams in the Maintain conditions performed worse than teams in the

Integrate or Eliminate conditions. Overall, the manipulation of experimental conditions explained 10% of the variance in performance.

Hypotheses 2a and 2b predict that the two approaches to downsizing that incorporate some form of structural adaptation will benefit from highly conscientious team members. The column labeled "Conscientiousness" in Table 3 shows the results for the interaction between Conscientiousness and the three approaches to downsizing. Consistent with these hypotheses, we found that conscientiousness interacts with downsizing approach to explain an additional 9% percent of the variance in team performance. The nature of this interaction is depicted in Figure 2 where it is evident that the trigger provided by the Eliminate Hierarchy structural reallocation approach is much more productive when it occurs in a context where the team is high on conscientiousness relative to when the team is low in conscientiousness. Interestingly, highly conscientious teams actually fared *worse* when they were in the Maintain Hierarchy condition, where their penchant for working harder versus smarter (LePine, 1999) may have been exacerbated by the stability of the structure and the lack of corresponding trigger for change.

Hypotheses 3a and 3b were partially supported in this experiment. These hypotheses predicted that the downsizing strategy would interact with the emotional stability of the team members in terms of influencing performance. The interaction between the conditions and emotional stability explained an additional 8% of the variance in performance, which is a statistically significant increment. The nature of this interaction is depicted in Figure 3 where it is evident that the trigger provided by the Eliminate approach was much more productive in terms of promoting future performance

when it occurred in teams that were high in emotional stability. Again, as was the case with conscientiousness, high levels of emotional stability actually exacerbated the negative effects of adopting a maintain approach, suggesting that it precluded rather than promoted adaptation.

Hypotheses 4a and 4b predict that the downsizing strategy would interact with the extraversion of the team members in terms of influencing performance. The interaction between the conditions and the team's level of extraversion was statistically significant and accounted for an incremental 14% of the variance in performance. The nature of this interaction is depicted in Figure 4 where it is evident that the Eliminate strategy worked particularly well when teams were high in extraversion. There was also a major negative effect for the Integration strategy when it was executed in a team that was low in extraversion.

### *Discussion*

Although the U.S. Military is committed to downsizing current troop levels, past research on downsizing has suggested that reductions in size have deleterious effects on performance, and that this is especially the case when changes in size are not accompanied by structural reallocations of responsibilities (Cascio, Young & Morris, 1997). That is, “pure employment downsizing” characterized by the simple reduction of lower level operators with no changes in centralization represents a potential “worst practice” when it comes to managing this type of organizational change. Although this past research has been conducted exclusively in large-scale organizations in cross-sectional field contexts where there was not random assignment to conditions (i.e., structural reallocation versus pure employment downsizing), and did not control for past

performance, we were able to replicate this effect in a tightly controlled laboratory study with small groups that were studied longitudinally. Tsang and Kwan (1999) identify this type of replication, that is, one that spans many different dimensions, as the most suitable vehicle for generating robust inferences regarding relationships in the social and behavioral sciences.

However, beyond simply reinforcing the inference that changes in size need to be accompanied by structural reallocations, this study extended the literature in two broad and important directions. First, there are different forms of “structural realignment” that could be employed as part of any downsizing efforts, and this study, focusing primarily on the centralization aspect of structure explored two very different decentralization schemes. One type of decentralization scheme removes a level of hierarchy but retains the presence of the person who once occupied that role. We labeled this condition as “Integrating Hierarchy,” and we suggested that the continued presence of the former leader provides a less salient “trigger or change” relative to a decentralization scheme that removes both the leadership position as well as the former occupant of the role, which we referred to as eliminating hierarchy.

Because it produces a less salient trigger for change, we predicted that this integrative form of decentralization would not be as effective as the elimination form of decentralization. Consistent with this prediction, teams that attempted to integrate their leader into an operational role performed much worse when they downsized relative to teams that eliminated the leader altogether.

In addition to recognizing different forms of structural realignment and decentralization, this study also contributed to the downsizing literature by showing that

at the point of execution – that is – at the team level, the composition of the team in terms of its psychological make-up also influences the success of any decentralization scheme.

Although superior in general to either the “Maintain” or “Integrate” approach, the Eliminate approach was especially effective in securing high performance when the team was conscientious, emotionally stable and extraverted. Extraversion was also an important factor that influenced the ‘Integrate’ approach in the sense that this was a particularly problematic strategy when the team was low in extraversion.

Interestingly, although generally considered positive traits, high levels of conscientiousness and emotional stability actually exacerbated the detrimental effects of the “Maintain” strategy. This was the worst strategy overall because it provided the least salient trigger to change processes, but when this approach was executed within a group of highly conscientious people – whose first reaction may have been to work harder and not smarter (LePine, 1999), it was particularly a bad approach. It was also an especially ineffective strategy when the group as a whole was calm and emotionally stable, and perhaps less dispositionally-oriented to rapidly abandon past practices even when this may have been the most appropriate response.

Future research needs to examine other dimensions of structure, such as departmentation, to see if other forms of structural realignment are more suitable than others when it comes to linking structural change to size reductions. For example, because functional structures tend to be more efficient than divisional structures, perhaps reductions in force that are accompanied by increases in the degree of functional departmentation outperform downsizing programs that maintain more divisional form of structure. In general, although it useful to know in a global sense that “pure employment

“downsizing” may be the worst practice when it comes to structural realignment, we have barely scratched the surface of all the many forms of structural realignment that might be attempted in conjunction with some downsizing effort, let alone the situational and compositional factors that may moderate the effects of any one form of reconfiguration.

Table 1

Variable	Mean	s.d.	Descriptive Statistics and Correlations <sup>a</sup>						
			1	2	3	4	5	6	7
1. Maintain	.26	.44							
2. Integrate	.25	.44	-.35*						
3. Eliminate	.24	.43	-.33*	-.32*					
4. Conscientiousness	3.80	.23	.10	-.02	-.14				
5. Emotional Stability	3.45	.24	.01	-.05	-.03	.23			
6. Extraversion	3.64	.21	-.04	.15	-.23*	.42*	.28*		
7. Team Performance	.09	1.49	-.24*	-.14	.16	.06	.10	.09	

<sup>a</sup> N = 71 teams

\* p &lt; .05 (two-tailed)

Table 2

Results of Hierarchical Regression Analysis<sup>ab</sup>

Independent Variable	$\beta$	Sig. (p)
Maintain	-.96	.04
Integrate	-1.06	.03
Eliminate	-.15	.75

<sup>a</sup> N = 71 teams<sup>b</sup> Controlling for team performance in simulation 1

Table 3

Results of Hierarchical Regression Analysis<sup>ab</sup>

Independent Variable	Conscientiousness	Emotional Stability	Extraversion
	$\Delta R^2$	$\Delta R^2$	$\Delta R^2$
Maintain			
Integrate			
Eliminate	.10**		
Moderating Variable	.00	.01	.01
Interaction: Maintain			
Interaction: Integrate			
Interaction: Eliminate	.09*	.08*	.14**
Total Adjusted $R^2$	.19**	.19**	.26**

<sup>a</sup> N = 71 teams<sup>b</sup> Controlling for team performance in simulation 1

\* p &lt; .10 \*\* p &lt; .05

Figure 1

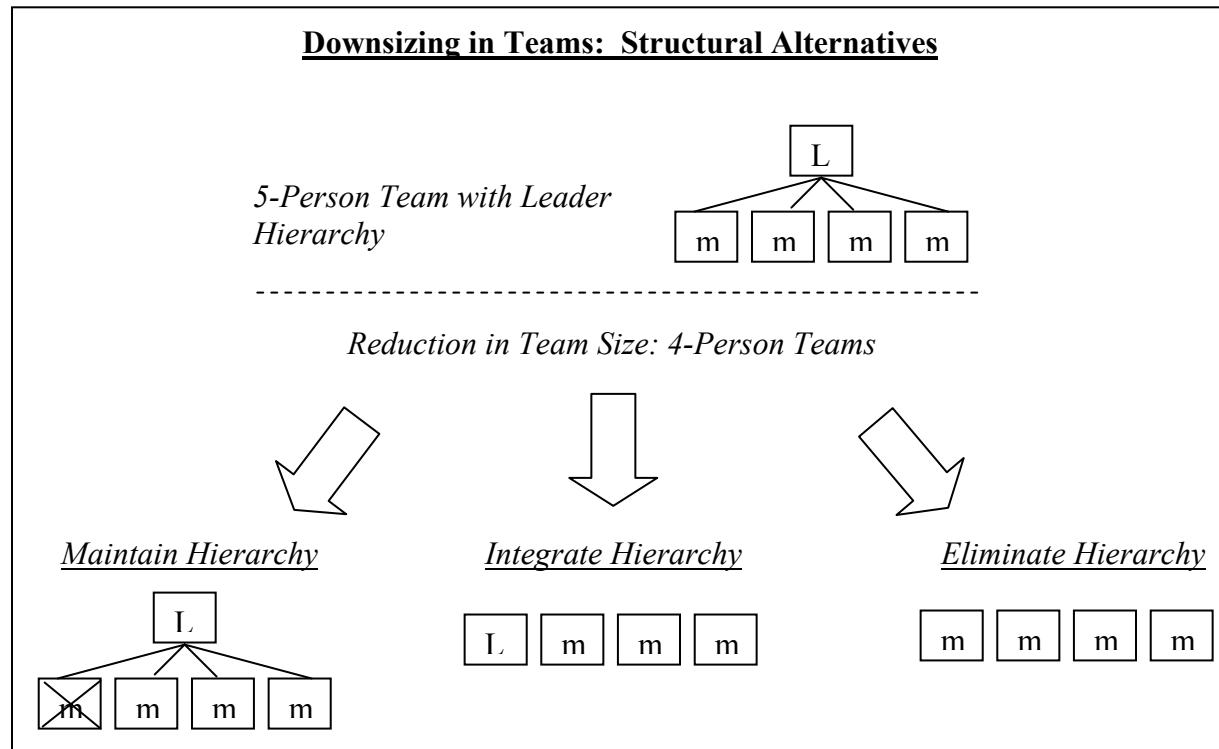


Figure 2

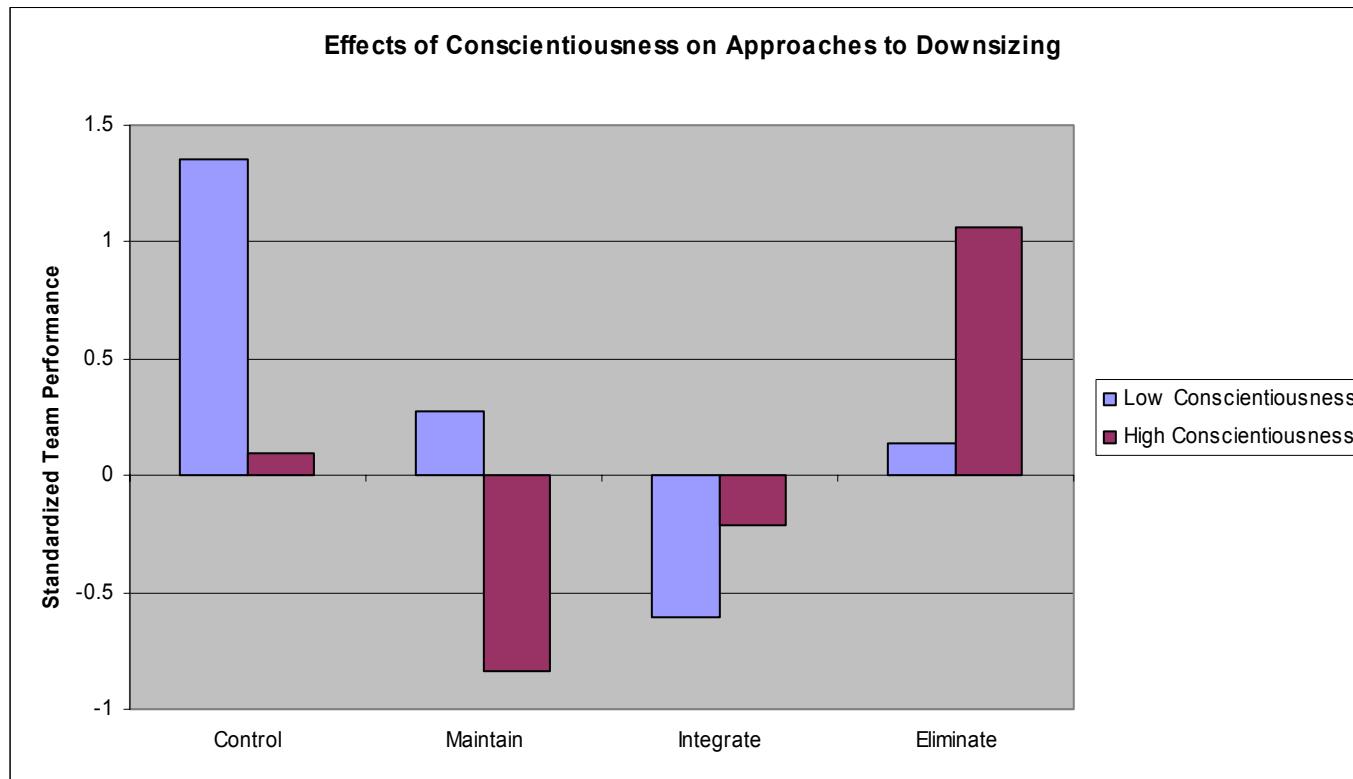


Figure 3

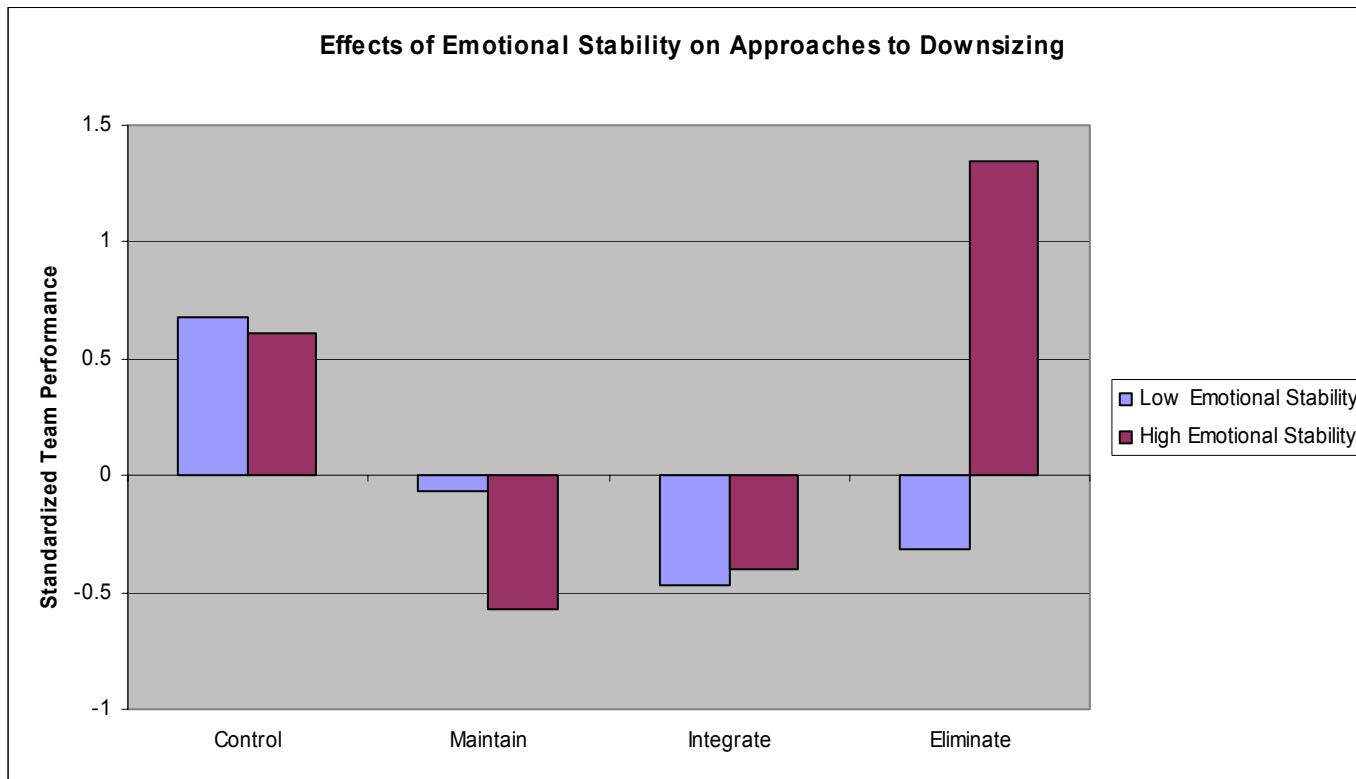
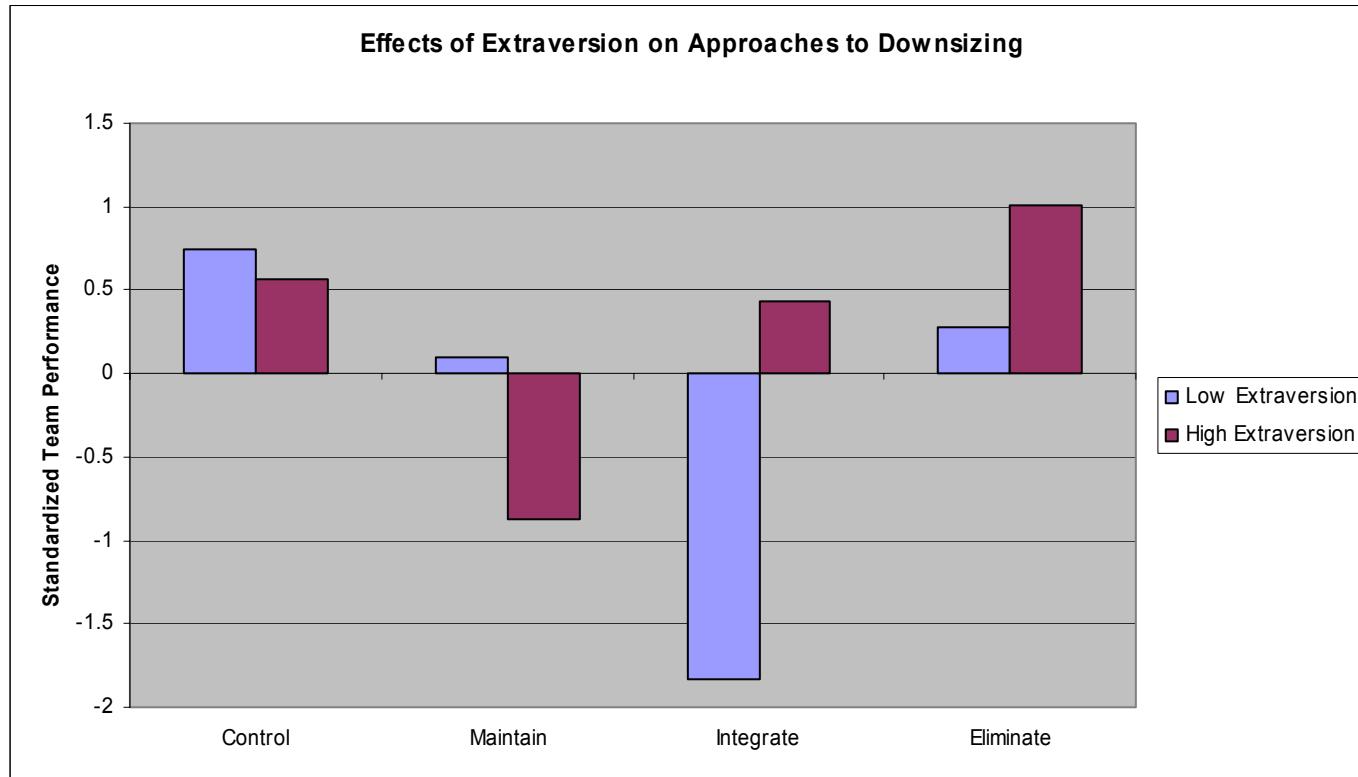


Figure 4



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# Adapting to Reductions in Team Size:

## *An Examination of Three Structural Alternatives*

D. Scott DeRue

John R. Hollenbeck

Dustin K. Jundt

Daniel R. Ilgen

Michael D. Johnson

# Program of Research: Team Adaptation

*Evolution of research on team adaptation...*

Recent Studies	Form of Adaptation	Publication Status
Team Adaptation & Postchange Performance: Effects of Team Composition in Terms of Members' Cognitive Ability and Personality	<b>Role structure adaptation</b> as a means of adapting to communication losses during the course of performing a task	Published in <i>Journal of Applied Psychology</i> , 2003, 88, 1, 27-39
Backing Up Behaviors in Teams: The Role of Personality and Legitimacy of Need	<b>Backing up behaviors</b> as a form of adapting to new adversary tactics	Published in <i>Journal of Applied Psychology</i> , 2003, 88, 3, 391-403
Team Learning: Collectively Connecting the Dots	<b>Team learning</b> as a means of adapting to new adversary technology	Published in <i>Journal of Applied Psychology</i> , 2003, 88, 5, 821-835
Asymmetric Adaptability: Dynamic Team Structures as One-Way Streets	<b>Horizontal resource allocation structural changes</b> may not be as easy to make in one direction as they are in the other	Published in the <i>Academy of Management Journal</i> , 2004, 47, 5, 681-695
The Asymmetric Nature of Structural Adaptation: The Impact of Centralizing and Decentralizing on Group Outcomes	<b>Vertical decision-making authority structural changes</b> may not be as easy to make in one direction as they are in the other	Manuscript under revision, to be submitted to the <i>Journal of Applied Psychology</i>

# Purpose of Current Study

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*Theme: Structural responses to reductions in team size*

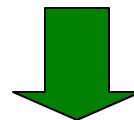
- Examine three structural alternatives for adapting to reductions in team size
- Examine contingencies in structural choice
  - Best structural alternative depends on team compositional factors – specifically team-level personality
    - Conscientiousness
    - Emotional stability
    - Extraversion

# Why is Adapting to Downsizing Important?

---

*Downsizing is one mechanism organizations use to cope with environmental change...*

- Personnel and compensation costs account for \$141 Bn (35%) of DOD budget
- Air Force reducing active-duty force by 20k+ by end of 2005 (Hafemeister, 2005)
- Navy eliminating need for 25k sailors by the end of 2007 (Farem, 2005)

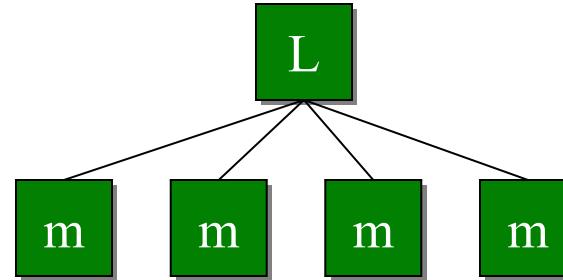


*However, limited guidance on how best to implement and manage downsizing initiatives*

# Structural Alternatives to Downsizing in Teams

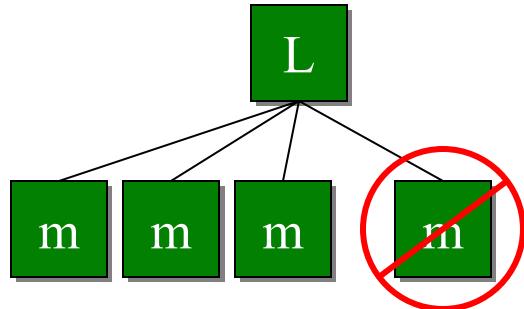
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*5-Person Team with Leader Hierarchy*

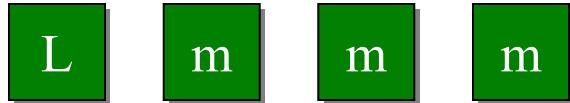


*Structural Alternatives to Reductions in Team Size*

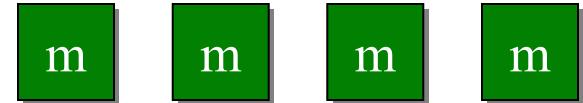
Maintain Hierarchy



Integrate Hierarchy



Eliminate Hierarchy



# Hypotheses: Basic Structural Alternatives

---

- Cascio et al. (1997) show “pure employment downsizing” leads to substantial performance losses...
- However, these losses can be offset with structural adaptation (Cameron et al., 1991)

**Hypothesis 1a:** Teams that do not downsize (Control) will achieve superior levels of performance relative to all teams that experience downsizing

**Hypothesis 1b:** Within the teams that are downsized, the teams who adapt structurally to the downsizing (Integrate and Eliminate) will generally outperform those teams that do not adapt structurally (Maintain)

# Downsizing in Teams: A Contingency Perspective

---

*Determining which structural alternative is best...*

- Contingency theory applied to:
  - Team performance (e.g., Hollenbeck et al., 2002)
  - Organizational adaptation (e.g., Lawrence & Lorsch, 1967)

$$\boxed{\text{Structural Alternative}} \quad \times \quad \boxed{\text{Team-Level Personality}} \quad = \quad \boxed{\text{Team Performance}}$$

- FFM of Personality (Barrick & Mount, 1991)
  - Conscientiousness
  - Emotional Stability
  - Extraversion

# Hypotheses: Contingency Perspective

---

*Expect appropriateness of structural alternative to depend on team-level personality*

**Hypothesis 2:** Benefits of structural reallocation (Eliminate and Integrate) relative to non-downsizing (Control) and pure employment downsizing (Maintain) will be most pronounced in teams that are high in ***conscientiousness***

**Hypothesis 3:** Benefits of structural reallocation (Eliminate and Integrate) relative to non-downsizing (Control) and pure employment downsizing (Maintain) will be most pronounced in teams that are high in ***emotional stability***

**Hypothesis 4:** Benefits of structural reallocation (Eliminate and Integrate) relative to non-downsizing (Control) and pure employment downsizing (Maintain) will be most pronounced in teams that are high in ***extraversion***

# Research Design

---

## Sample

- 71 five-person teams (random assignment)
- Upper-level, undergraduate business students

## Command & Control Task

- DOD Distributed Dynamic Decision-Making (DDD)
- 4 assets (AWACS, tank, helicopter, jet)
- 12 unique tracks (3 friendly, 9 enemy)

## Training

- 15-minute instructional video
- 60-minutes of hands-on training with supervised instruction

## Manipulations

- Teams randomly assigned to 4 conditions
  - Control
  - Maintain
  - Integrate
  - Eliminate

# Results – Basic Descriptives & Correlations

Variable	Mean	s.d.	1	2	3	4	5	6	7
1. Maintain	.26	.44							
2. Integrate	.25	.44	-.35*						
3. Eliminate	.24	.43	-.33*	-.32*					
4. Conscientiousness	3.80	.23	.10	-.02	-.14				
5. Emotional Stability	3.45	.24	.01	-.05	-.03	.23*			
6. Extraversion	3.64	.21	-.04	.15	-.23*	.42*	.28*		
7. Team Performance	.09	1.49	-.24*	-.14	.16	.06	.10	.09	

N = 71 teams

\* P < .05 (two-tailed)

# Results – Hypothesis 1a & 1b

*Regarding team performance, we hypothesized:*

Control

>

Eliminate / Integrate

>

Maintain

**Results of Regression Analysis of Performance on Downsizing Approach**

Step	Independent Variable	$\beta$	Total R <sup>2</sup>	$\Delta R^2$
1	Game 1 Performance	.27*	.10*	.10*
2	Maintain	-.96*	.20*	.10*
	Integrate	-1.06*		
	Eliminate	-.15		N = 71 teams * P < .05 (two-tailed)

*Find general support for Hypothesis 1*

# Results – Hypothesis 2

---

*Expect benefits of structural adaptation to be most pronounced in highly conscientious teams*

**Results of Regression Analysis of Performance on Downsizing Approach**

Step	Independent Variable	$\beta$	Total R <sup>2</sup>	$\Delta R^2$
1	Game 1 Performance	.27**	.10**	.10**
2	Maintain	-.96**	.20**	.10**
	Integrate	-1.06**		
	Eliminate	-.15		
3	Conscientiousness	.00	.20**	.00
4	Maintain X Cons.	.33	.29**	.09*
	Integrate X Cons.	3.57*		
	Eliminate X Cons.	4.74**		

N = 71 teams. \* P < .10 (two-tailed)

\*\* P < .05 (two-tailed)

# Results – Hypothesis 3

---

*Expect benefits of structural adaptation to be most pronounced in highly emotional stable teams*

**Results of Regression Analysis of Performance on Downsizing Approach**

Step	Independent Variable	$\beta$	Total R <sup>2</sup>	$\Delta R^2$
1	Game 1 Performance	.27**	.10**	.10**
2	Maintain	-.96**	.20**	.10**
	Integrate	-1.06**		
	Eliminate	-.15		
3	Emotional Stability	.56	.21**	.01
4	Maintain X Emo. St.	-.93	.29**	.08*
	Integrate X Emo. St.	.29		
	Eliminate X Emo. St.	3.63*		

N = 71 teams. \* P < .10 (two-tailed)

\*\* P < .05 (two-tailed)

# Results – Hypothesis 4

---

*Expect benefits of structural adaptation to be most pronounced in highly extraverted teams*

**Results of Regression Analysis of Performance on Downsizing Approach**

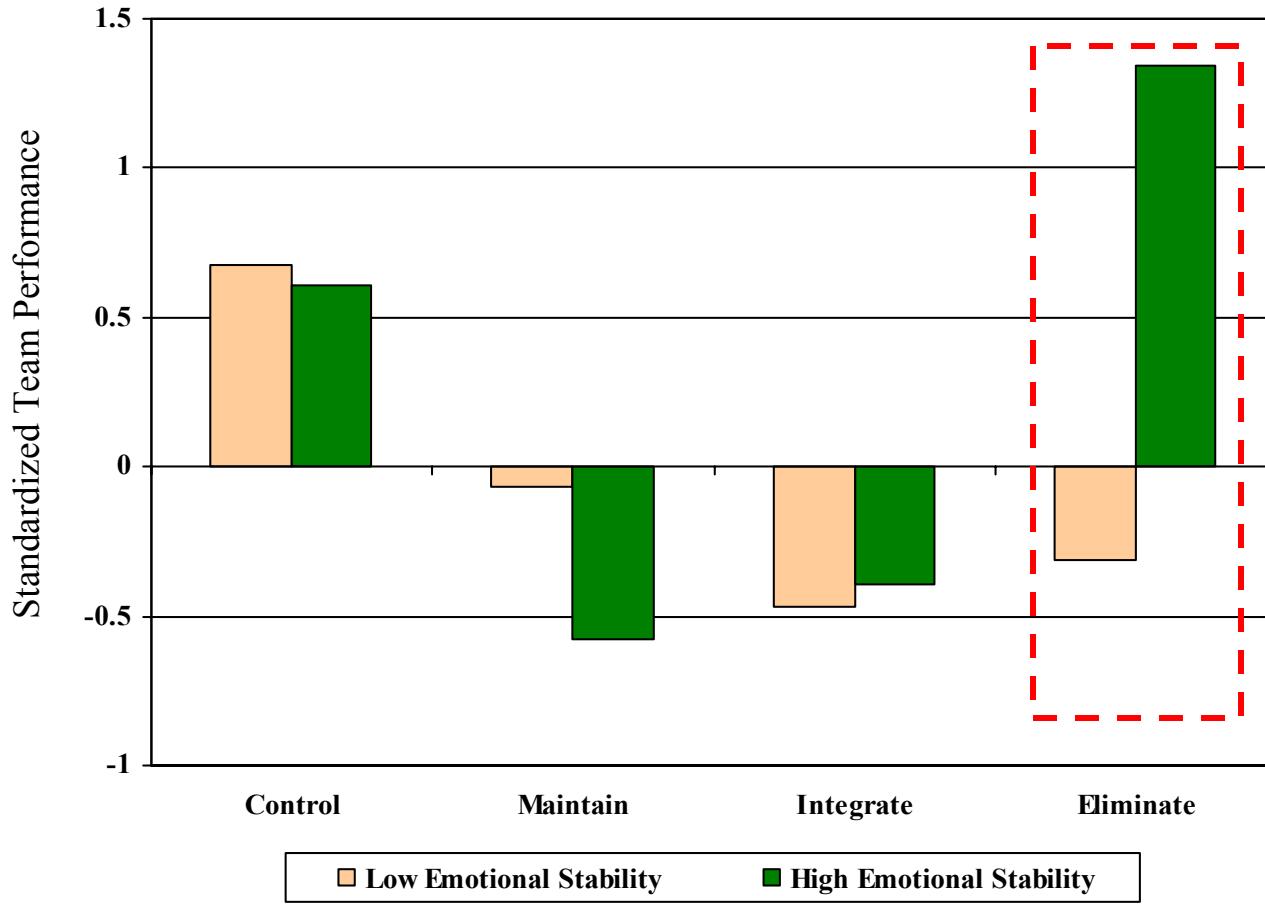
Step	Independent Variable	$\beta$	Total R <sup>2</sup>	$\Delta R^2$
1	Game 1 Performance	.27**	.10**	.10**
2	Maintain	-.96**	.20**	.10**
	Integrate	-1.06**		
	Eliminate	-.15		
3	Extraversion	.83	.21**	.01
4	Maintain X Extraversion	-1.86	.35**	.14**
	Integrate X Extraversion	5.71**		
	Eliminate X Extraversion	2.13		

N = 71 teams. \* P < .10 (two-tailed)

\*\* P < .05 (two-tailed)

# Effects of Team-Level Emotional Stability

Interaction of Downsizing Approach & Emotional Stability on Team Performance



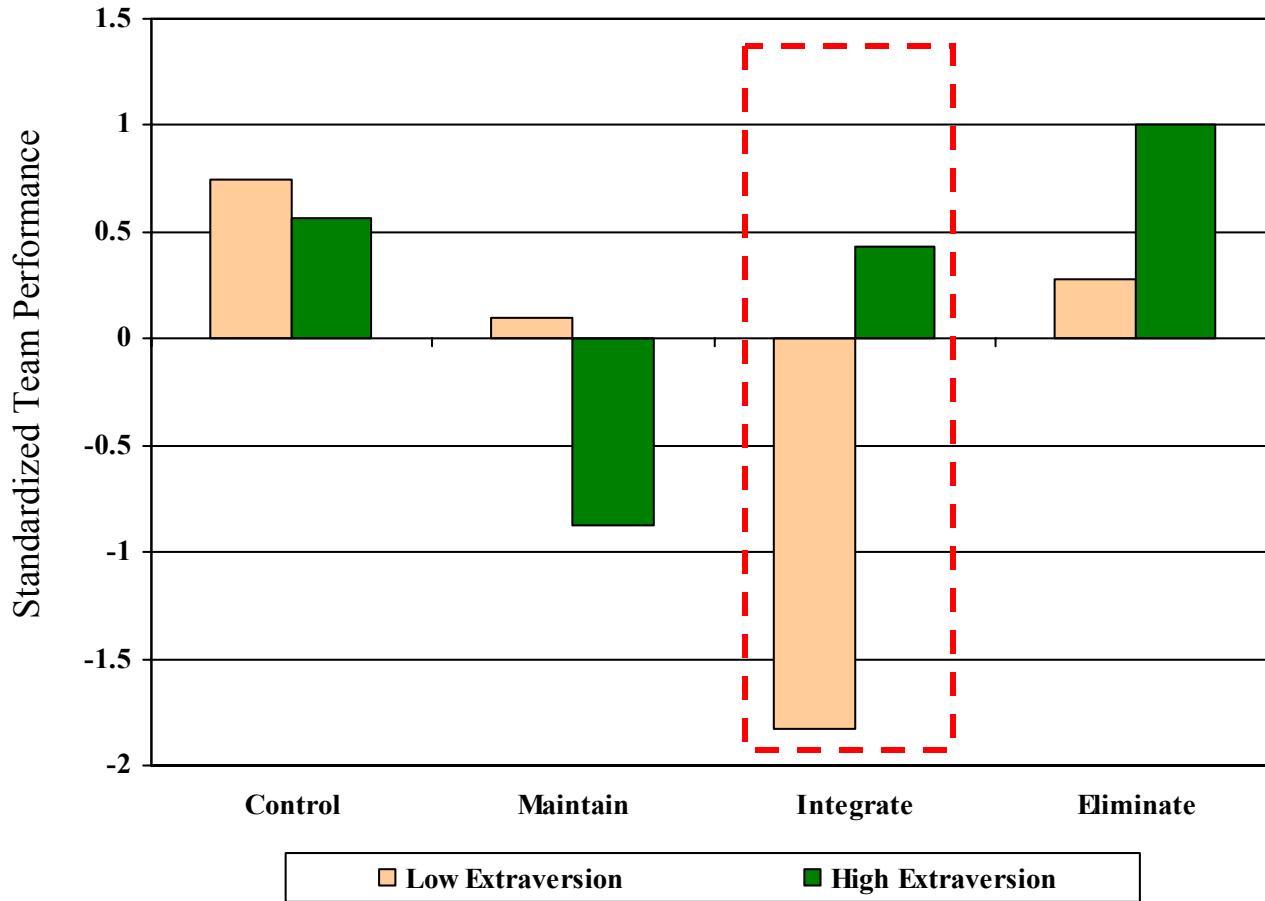
Emotional stability is a key factor for teams facing the loss of a leader, or moving to a self-managing team



Teams high in emotional stability are better able to manage the loss of their leader

# Effects of Team-Level Extraversion

Interaction of Downsizing Approach & Extraversion on Team Performance



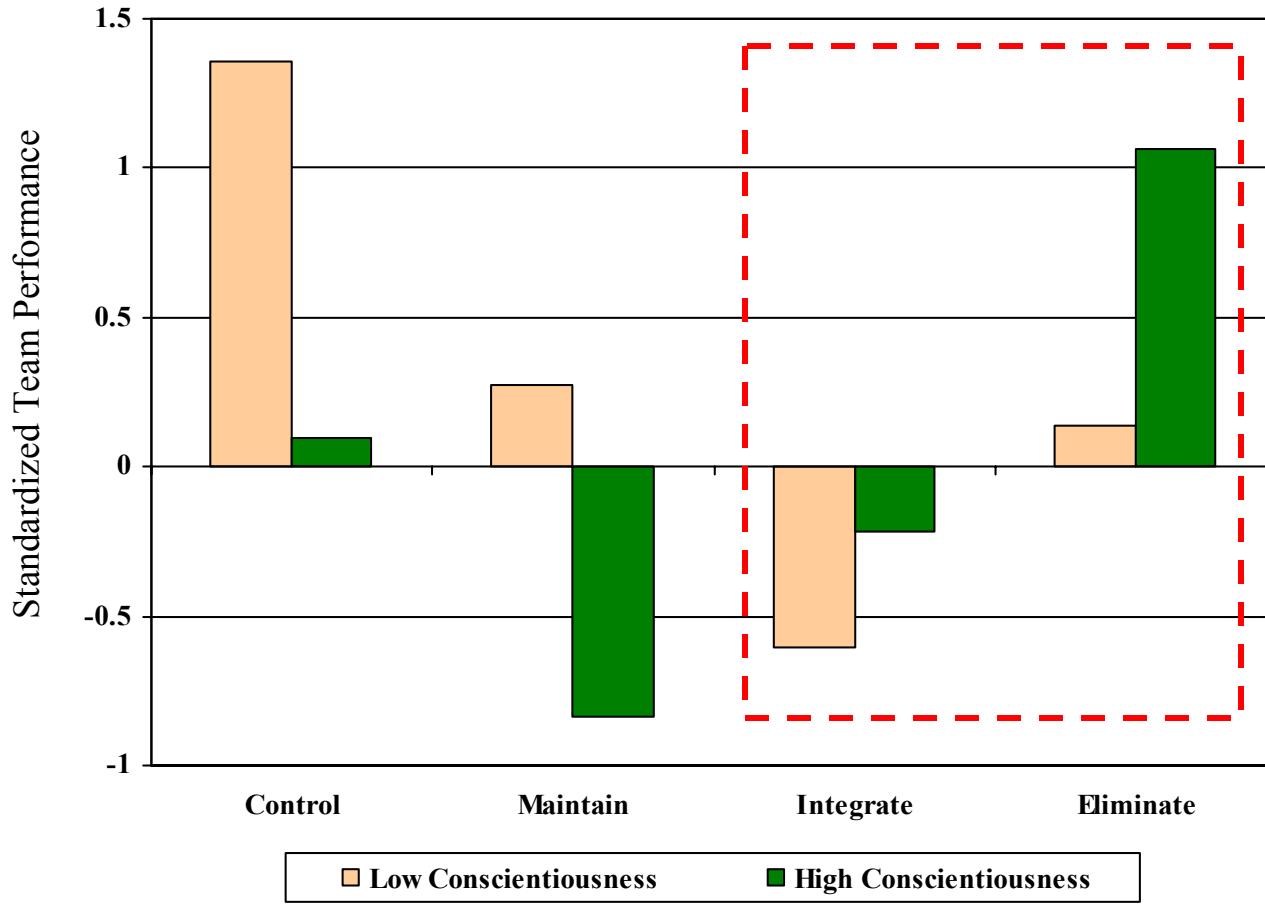
Extraversion is a key factor for teams attempting to delay their hierarchical structure



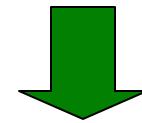
Teams high in extraversion are better able to integrate their leader as a task performing team member

# Effects of Team-Level Conscientiousness

Interaction of Downsizing Approach & Conscientiousness on Team Performance



Conscientiousness is a key factor for teams attempting to delay their hierarchical structure *or* eliminate the leader position



Teams high in conscientiousness are better able to integrate their leader *or* move to a self-managing team

# Implications & Future Research

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*Downsizing in organizational teams is complex...*

- Multiple approaches to downsizing in teams
- Most effective approach depends on compositional elements of the team (e.g., team-level personality)
- Future research:
  - Effect of other team compositional factors (e.g., GMA)
  - Effect of leader traits (e.g., personality, GMA, etc.)
    - How do the characteristics of the leader impact which approach to downsizing is most appropriate?

# Comments & Questions

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*With additional comments or questions,  
please contact:*

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